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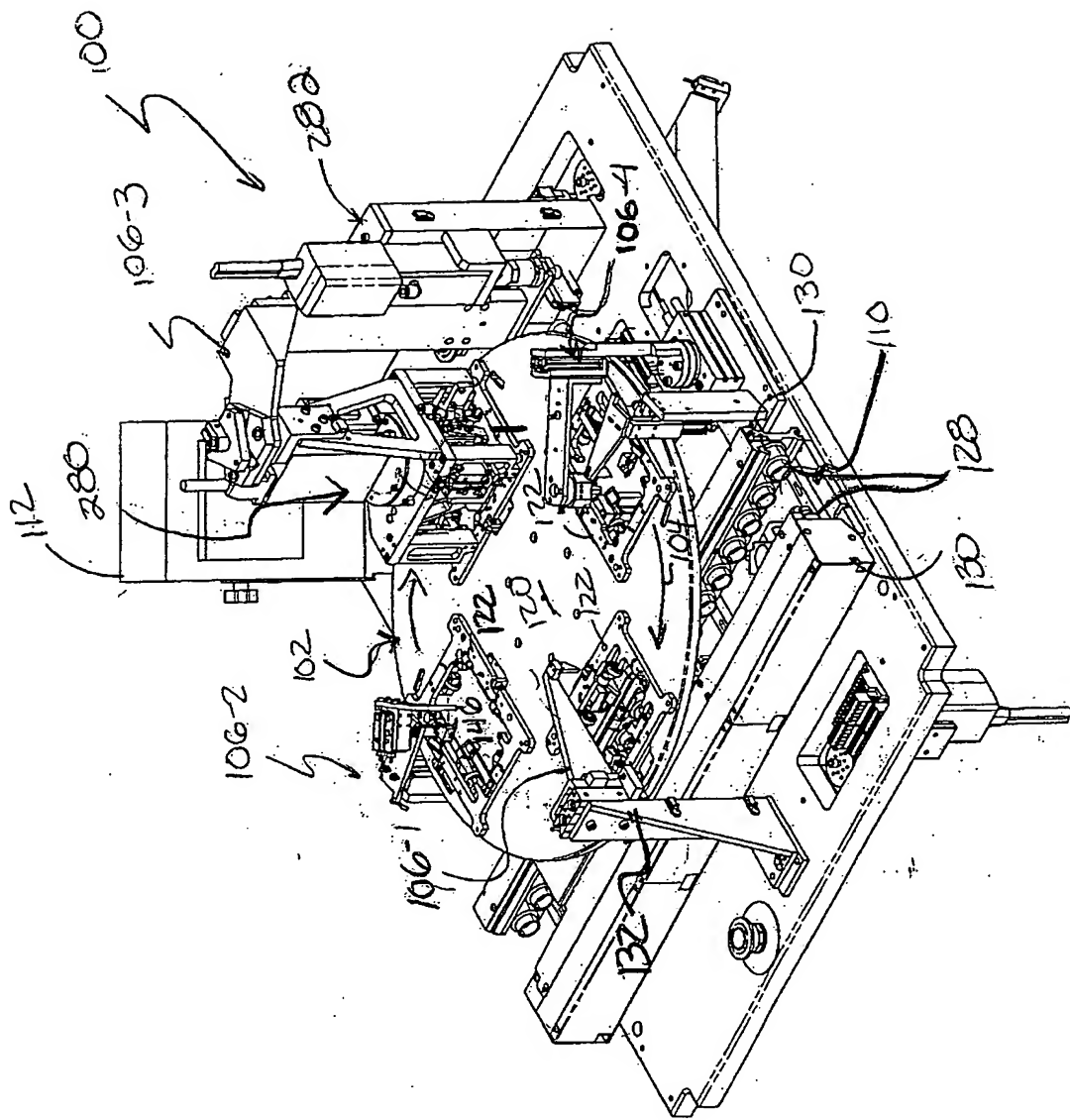


FIG. 1

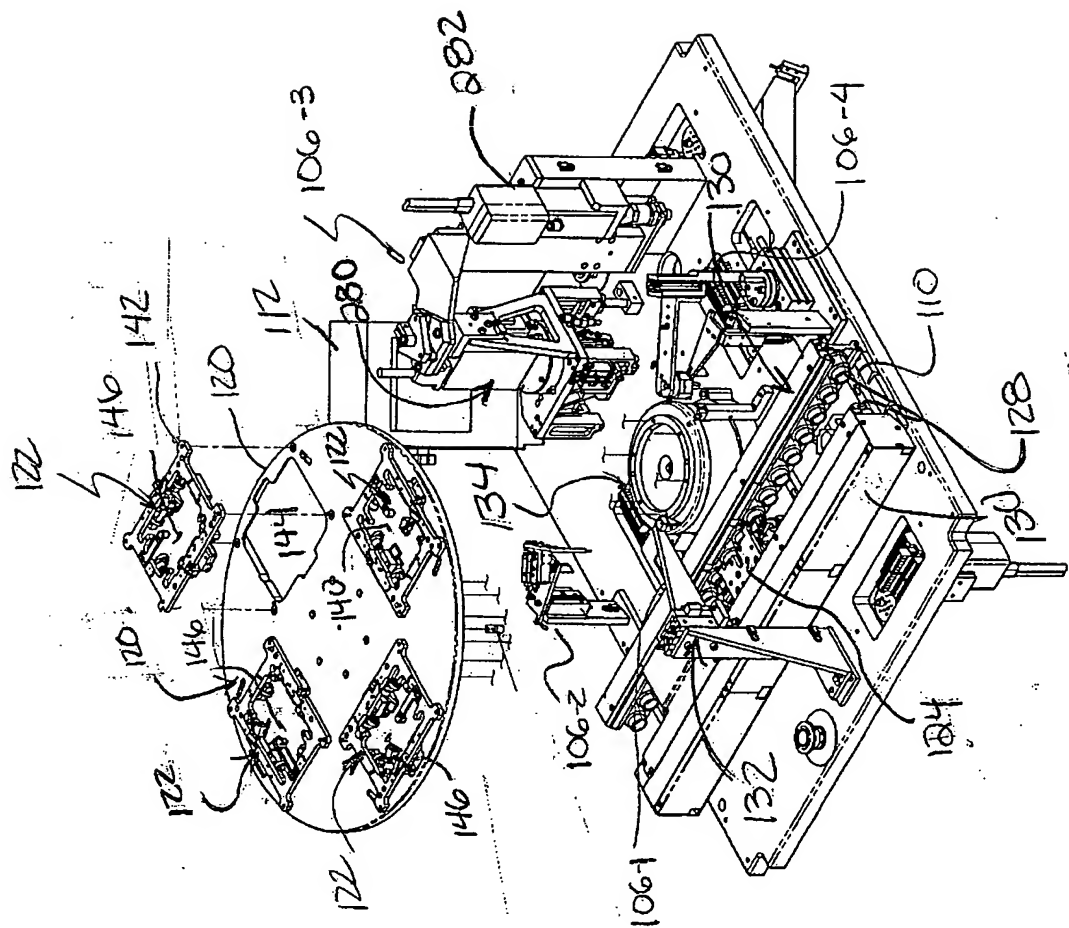


FIG. 2

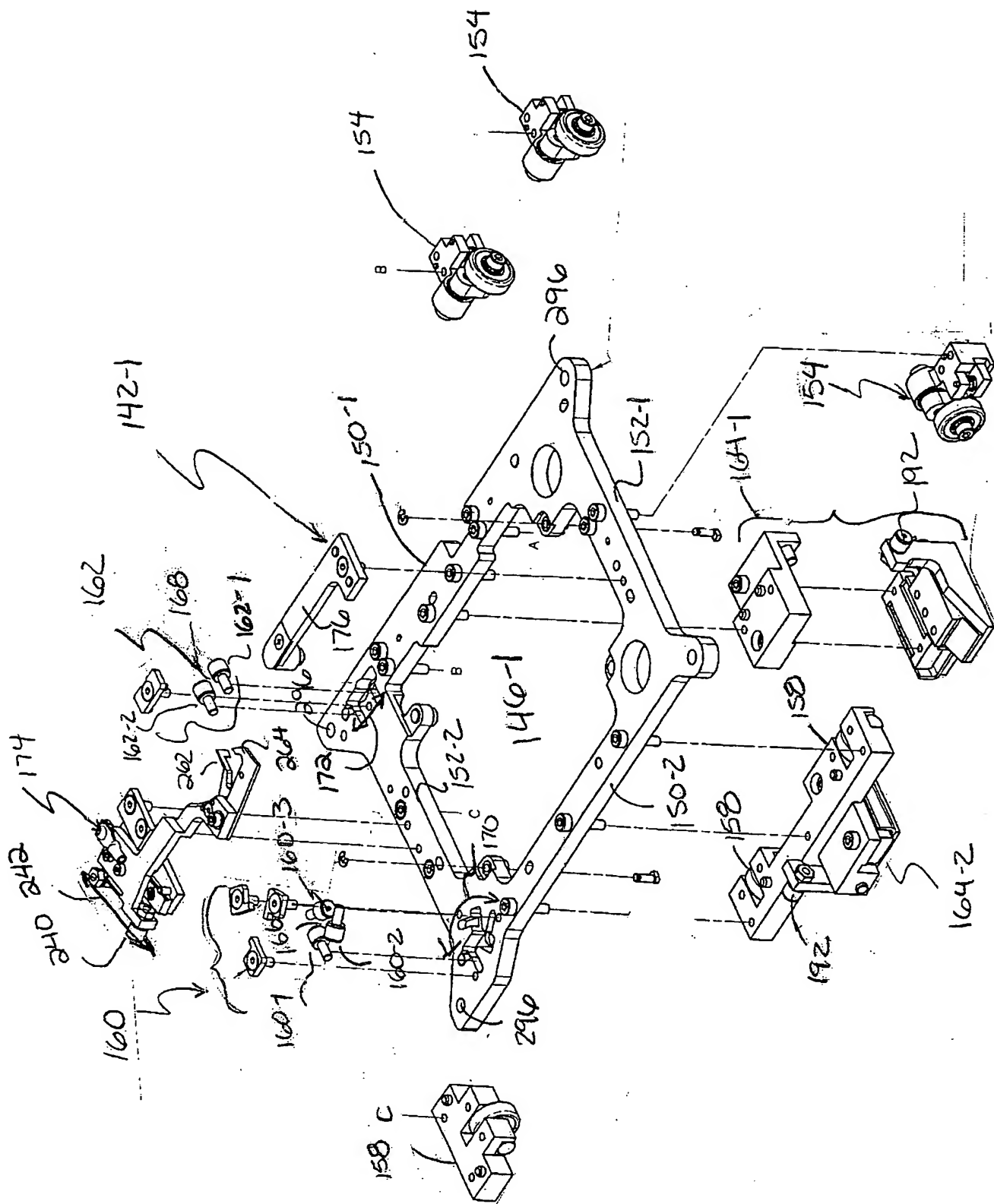


FIG. 3

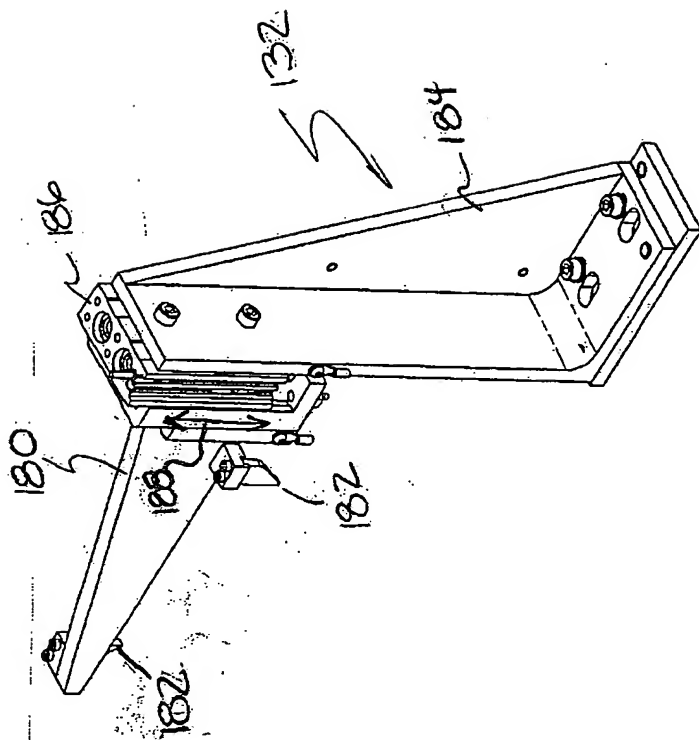
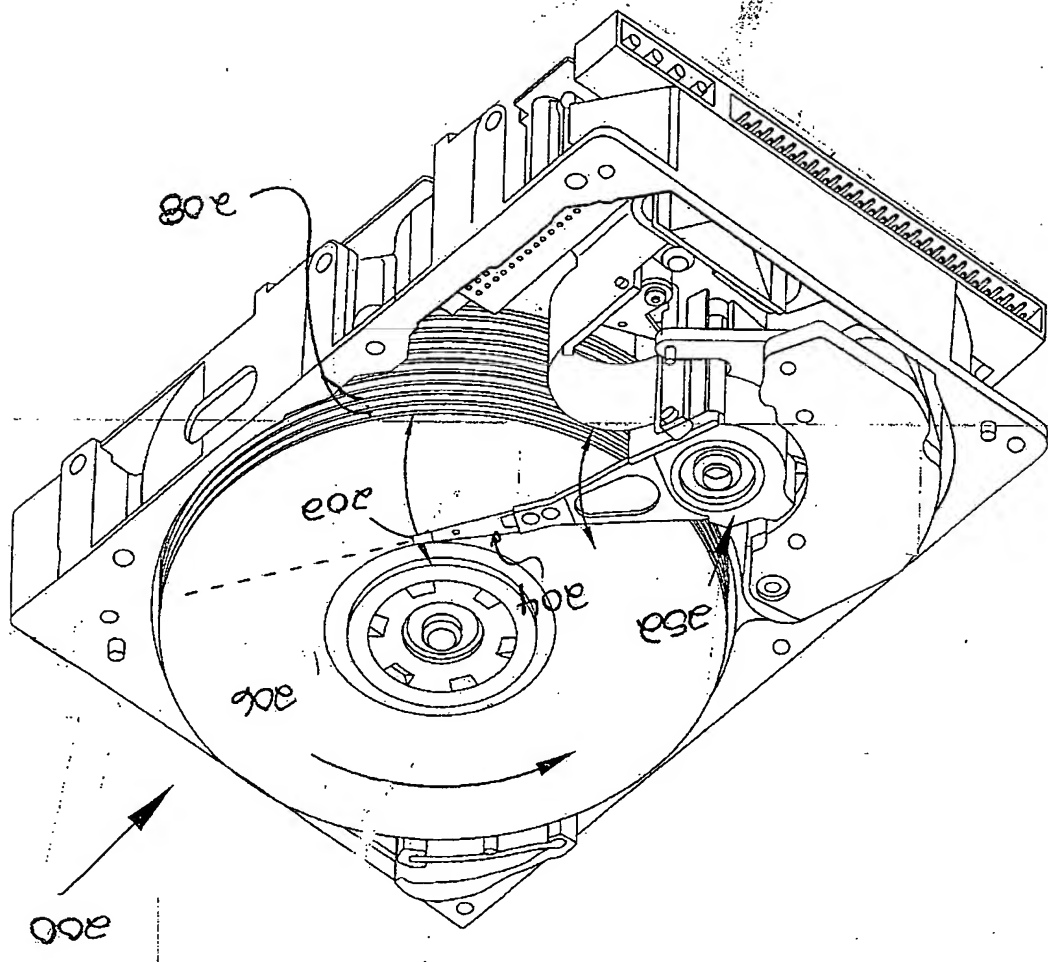


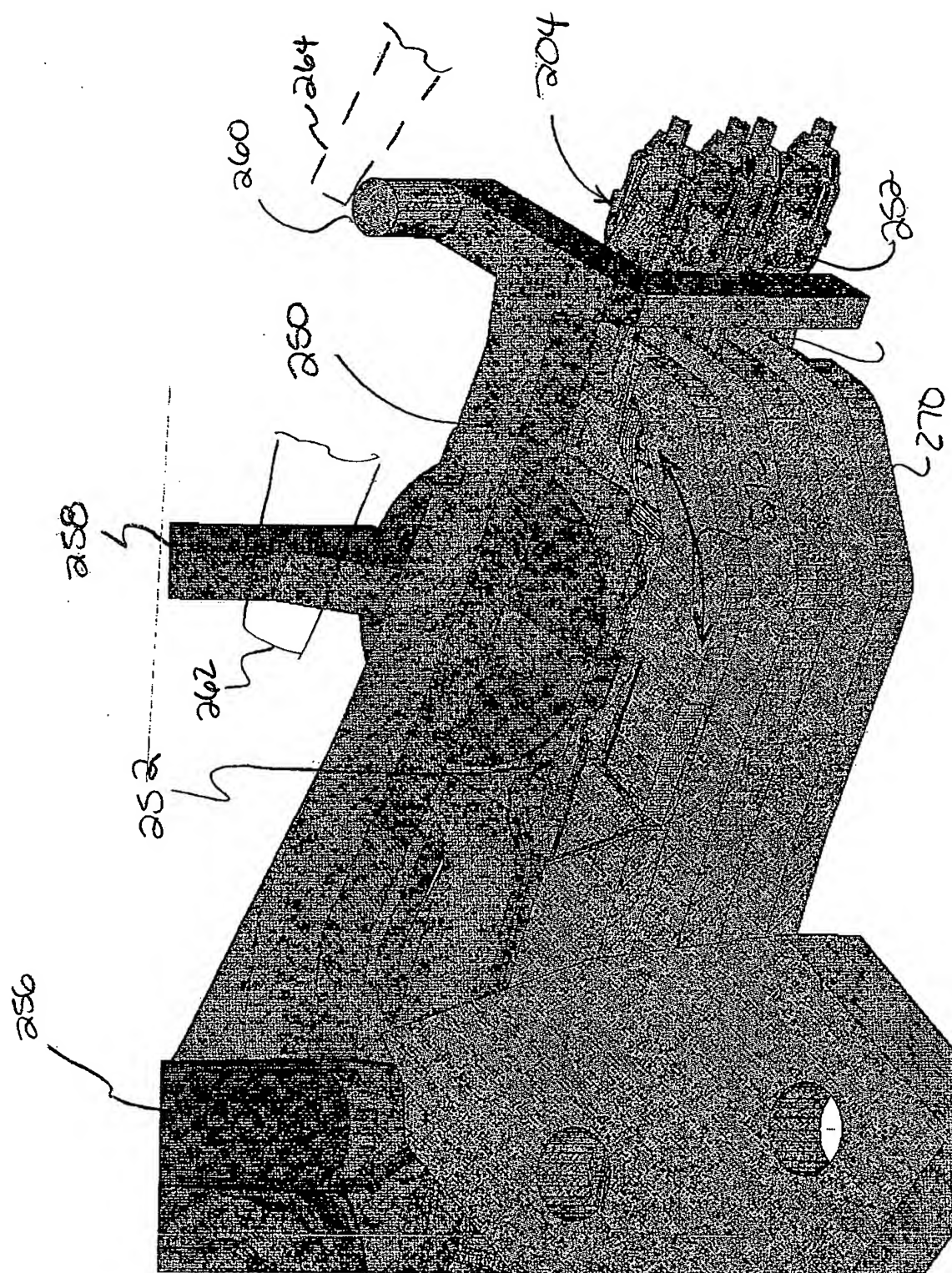
FIG.4

FIG. 5





9511



701

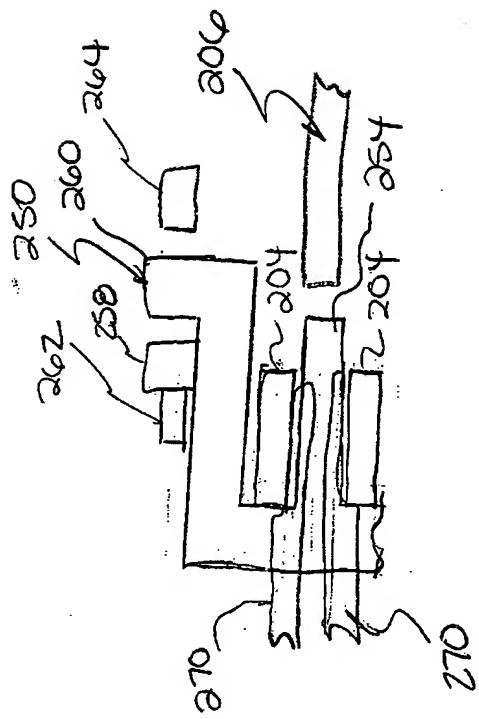


FIG. 8

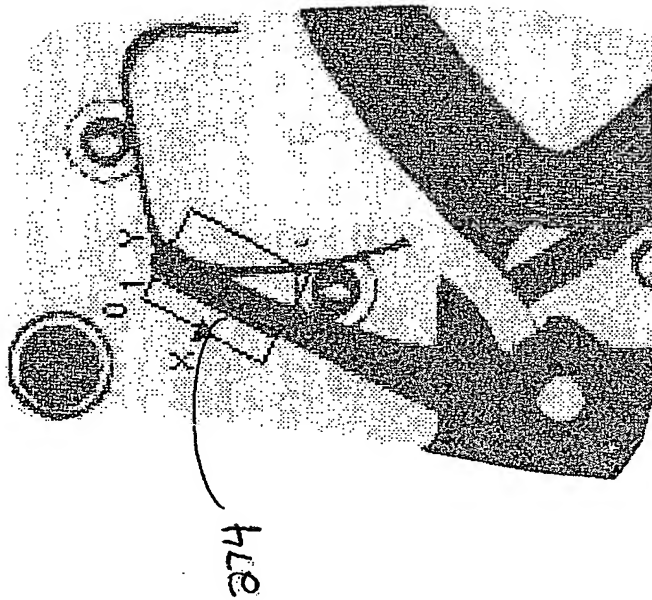


FIG. 9

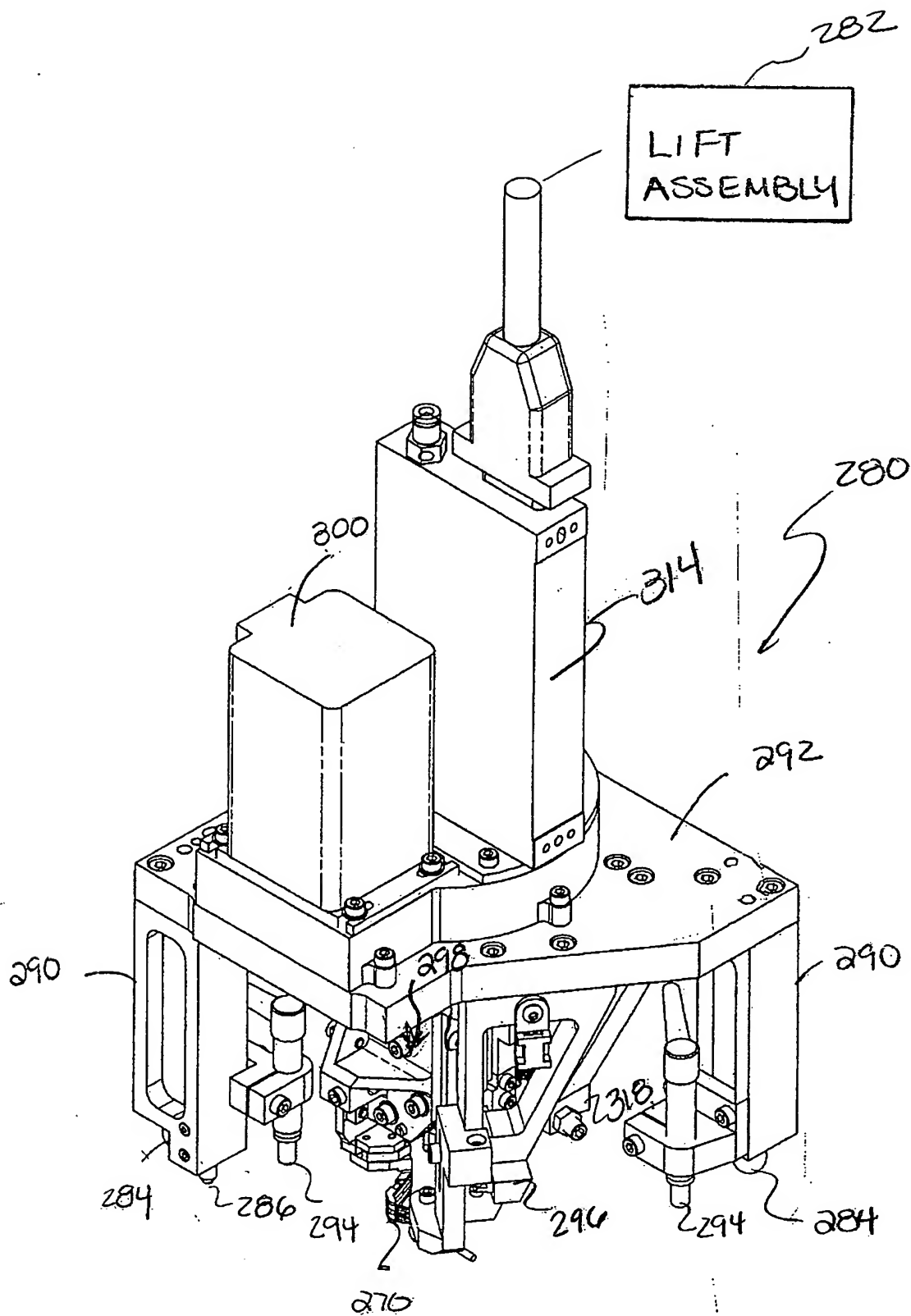


FIG. 10-1

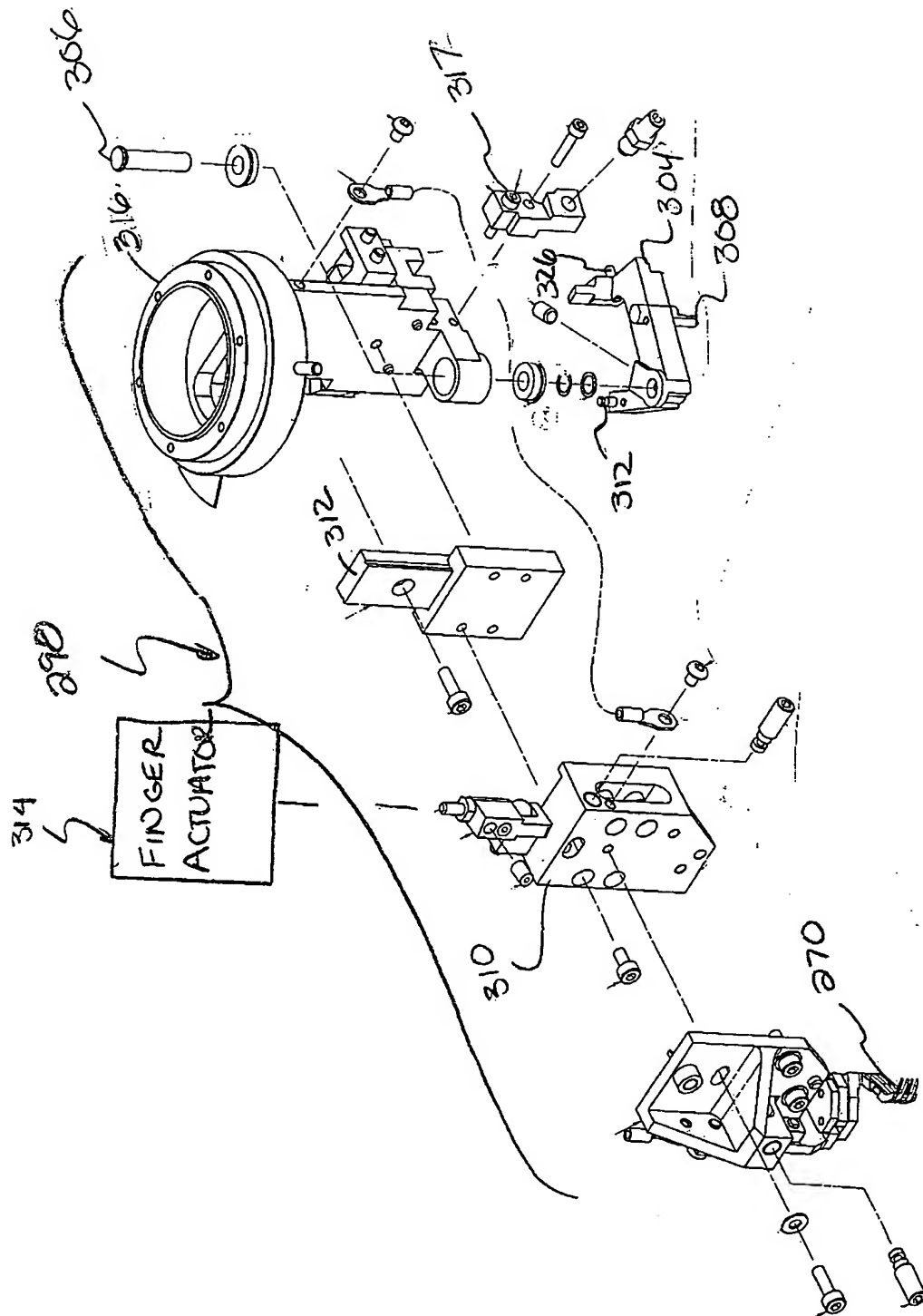


FIG. 10-3

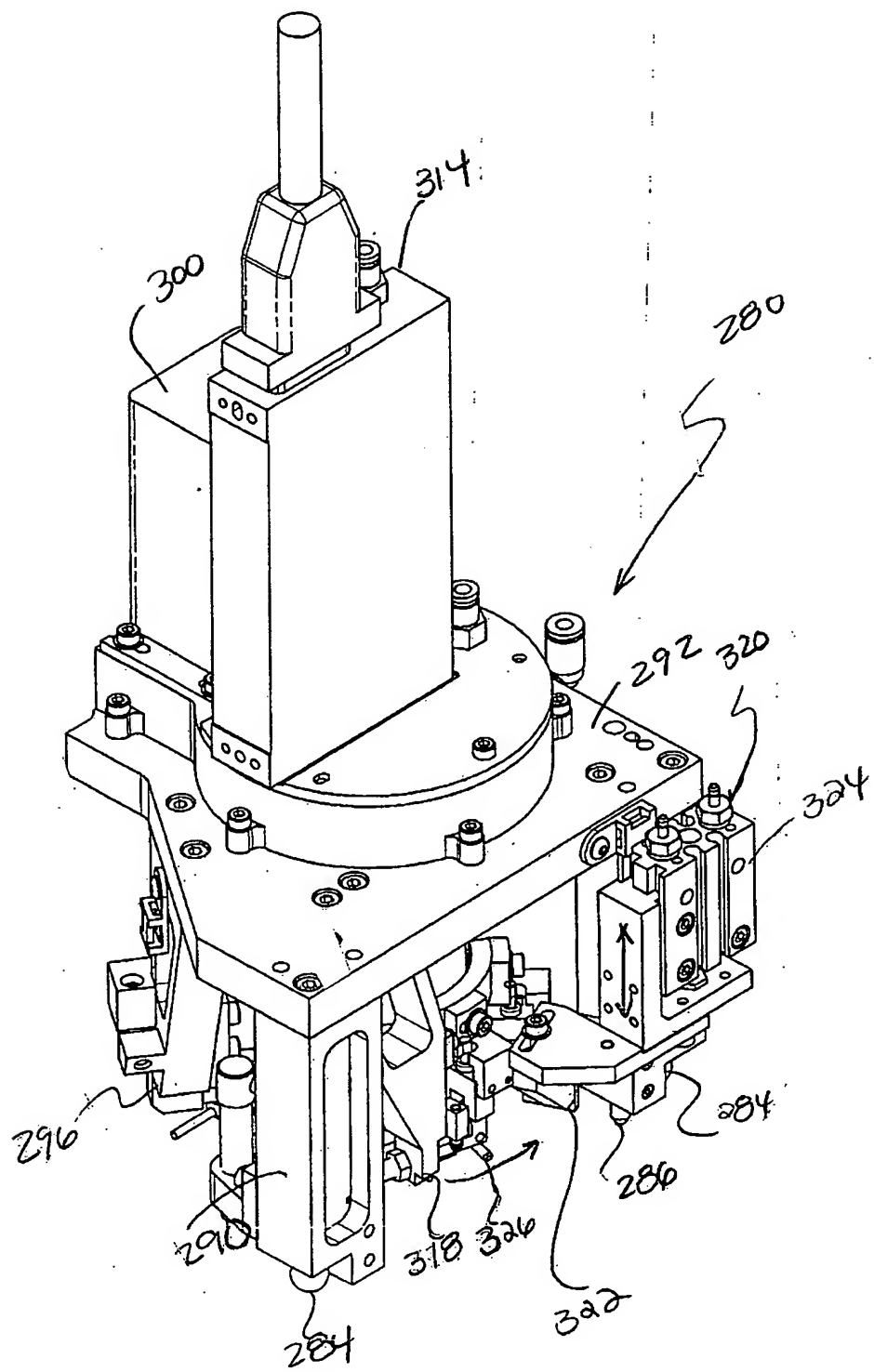


FIG. 10-4

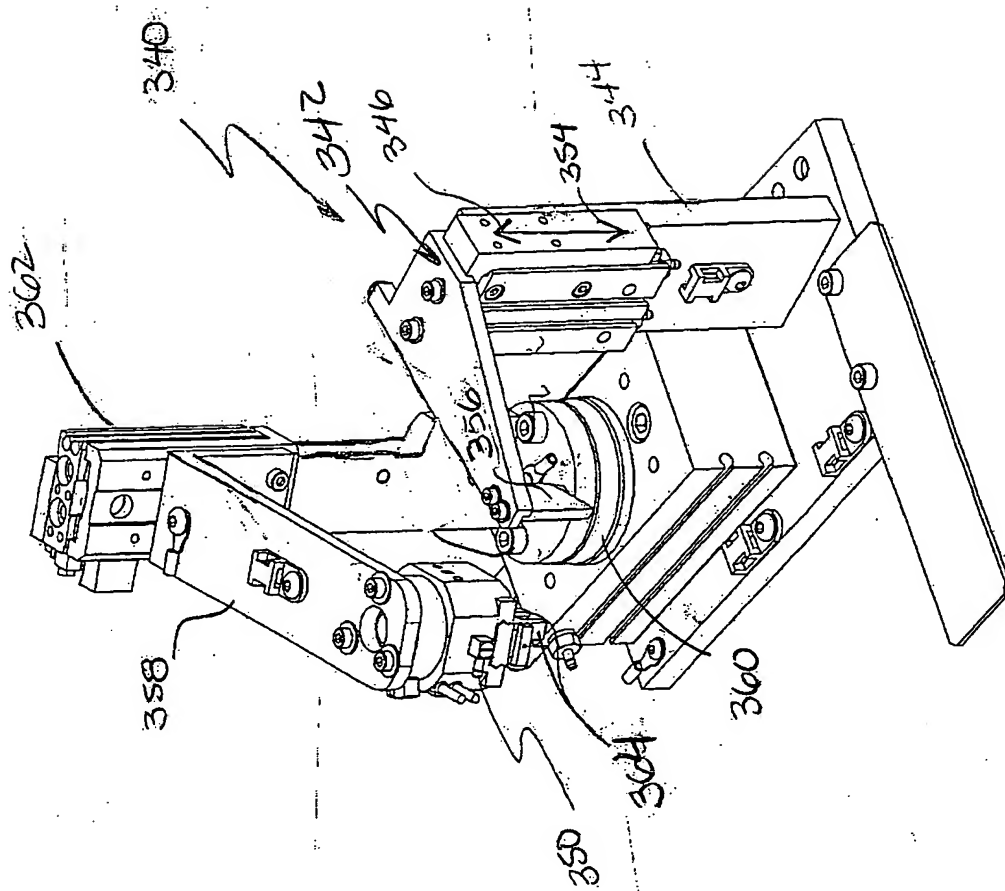
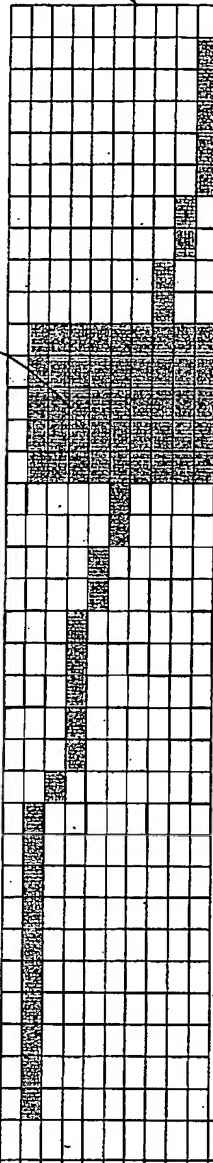


FIG. 11

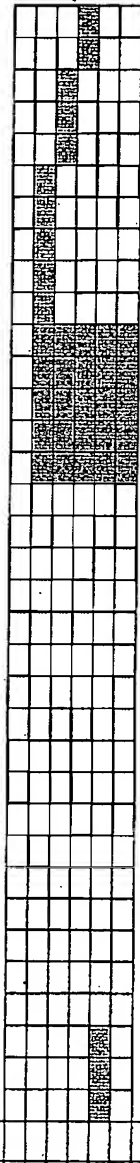
370

372

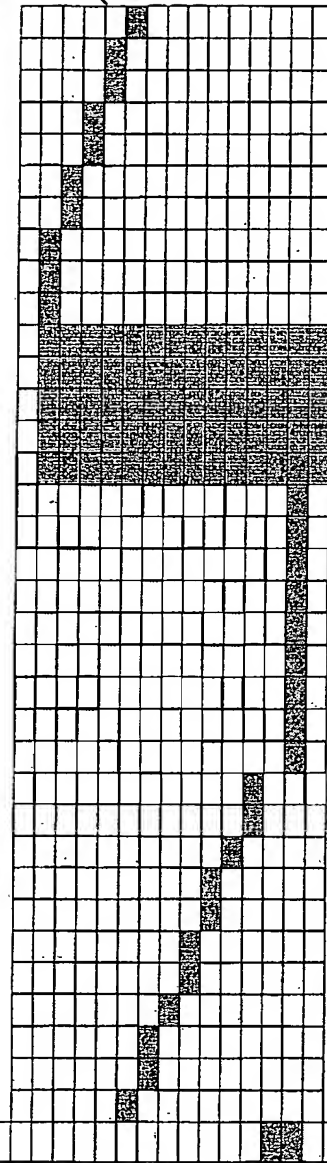
- 1.0 INDEX 1 - LIFT/CONVEY
- 1.1 CONVEY IN/OUT
- 1.2 CONFIRM HDA POSN.
- 1.3 LIFT UP
- 1.4 CLAMP CYLINDER UP
- 1.5 LIFT DOWN (short)
- 1.6 ROTATE TABLE
- 1.7 LIFT UP (short)
- 1.8 CLAMP CYLINDER DOWN
- 1.9 LIFT DOWN



- 2 INDEX 2 - CLOCK HSA
- 2.1 VISION CHECK 1
- 2.2 CAM CYLINDER DOWN
- 2.3 CAM CYLINDER UP
- 2.4 VISION CHECK 2
- 2.5 ROTATE TABLE



- 3 INDEX 3 - MERGE
- 3.1 LOWER MERGE HEAD
- 3.2 CHECK SENSORS
- 3.3 LOWER SPREADER
- 3.4 VERIFY SPREADER POSN.
- 3.5 ENGAGE HEADS
- 3.6 MERGE (SPREADER IN)
- 3.7 LOWER LATCH CYLINDER
- 3.8 SET HEADS ON DISCS
- 3.9 ROTATE SPREADER OUT
- 3.10 RAISE SPREADER
- 3.11 RAISE MERGE HEAD
- 3.12 RAISE LATCH CYLINDER
- 3.13 INSPECT SPREADER
- 3.14 ROTATE TABLE



- 4 INDEX 4 - PICK COMB
- 4.1 CAM CYLINDER DOWN
- 4.2 CAM CYLINDER UP
- 4.3 GRIPPER DOWN
- 4.4 GRIPPER CLOSE
- 4.5 GRIPPER UP
- 4.6 GRIPPER ROTATE OUT
- 4.7 VISION CHECK 3
- 4.8 GRIPPER OPEN
- 4.9 CONFIRM COMB DUMP
- 4.10 GRIPPER ROTATE IN
- 4.11 ROTATE TABLE

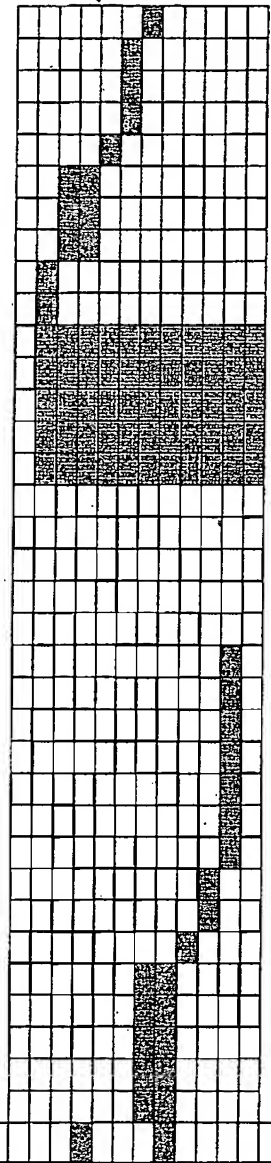


FIG. 12

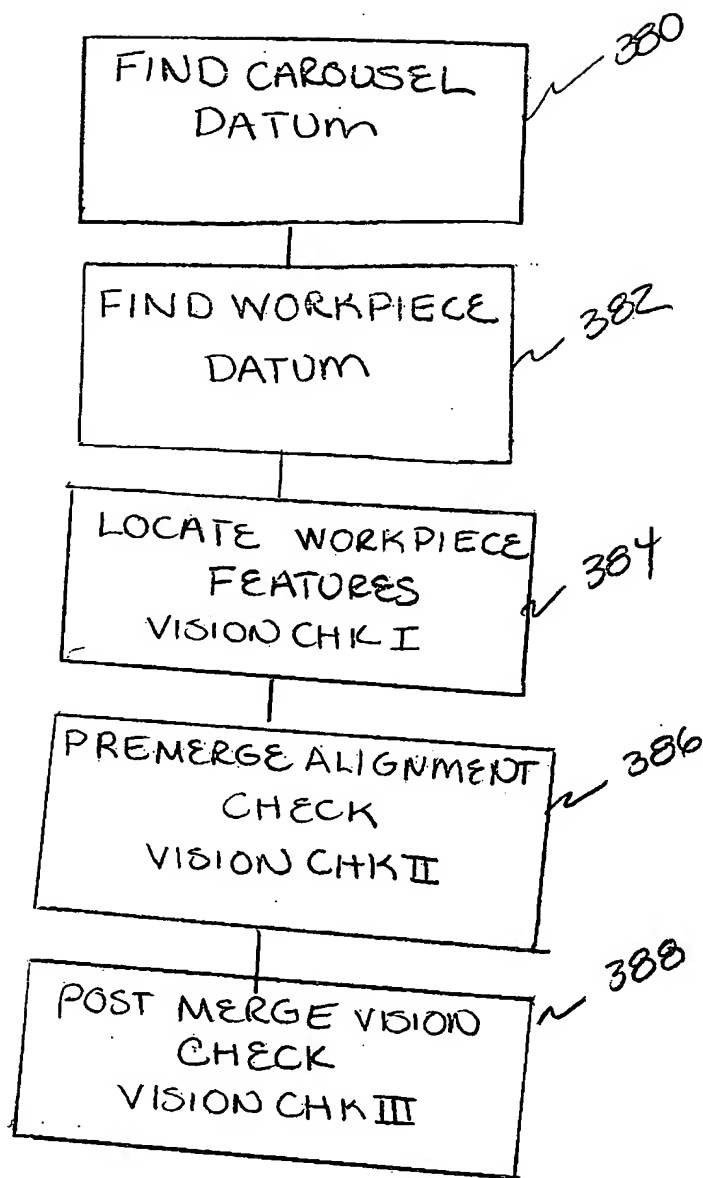


FIG. 13

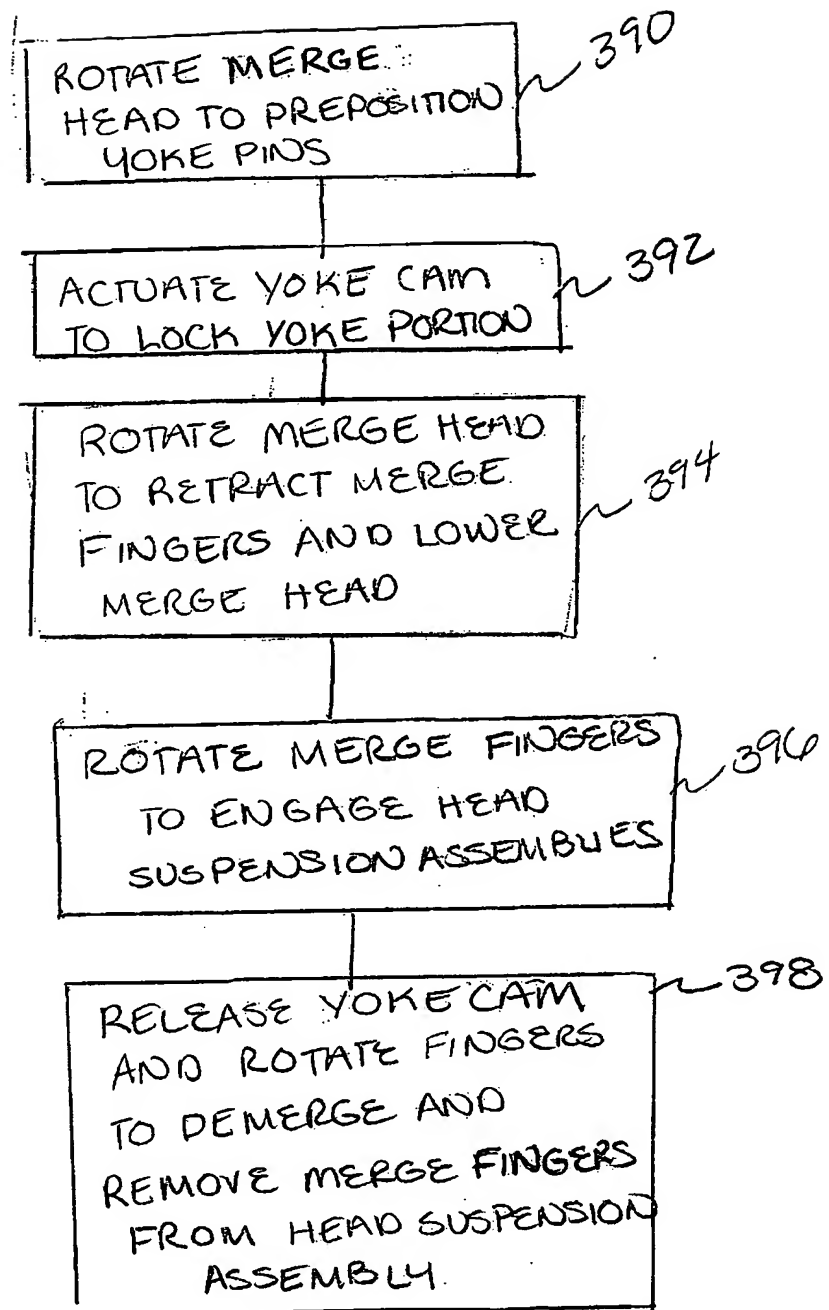


FIG. 14